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ABSTRACT

Developed to increase student and teacher awareness of safe laboratory conditions, this guide provides information and suggestions for maintaining a safe laboratory environment. Section 1 contains a listing of potentially hazardous chemicals commonly used in secondary school science classes and section 2 lists potentially hazardous chemicals produced in laboratory experiments and other activities. Information for each chemical in both sections is given in tabular form and includes: (1) chemical name; (2) hazards associated with the chemical; (3) incompatible substances or conditions; (4) storage containers; (5) other safeguards; and (6) first aid treatment. A glossary of terms related to laboratory safety is also included. (ML)

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PRECAUTIONS WITH CHEMICALS

COMMONLY USED IN SECONDARY SCIENCE LABORATORY INSTRUCTION OR PRODUCED IN LABORATORY EXPERIMENTS

LOS ANGELES UNIFIED SCHOOL DISTRICT
Office of Secondary Instruction
Publication No. SC-865

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PRECAUTIONS WITH CHEMICALS
COMMONLY USED IN SECONDARY SCIENCE LABORATORY INSTRUCTION
OR PRODUCED IN LABORATORY EXPERIMENTS

A SAFETY HANDBOOK

FOR

JUNIOR AND SENIOR HIGH SCHOOL SCIENCE TEACHERS

LOS ANGELES UNIFIED SCHOOL DISTRICT

OFFICE OF SECONDARY INSTRUCTION

PUBLICATION NO. SC-865

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FOREWORD

Science laboratory investigations are a significant part of science instruction. Every District-approved science course includes laboratory investigations. These investigations enable the student to develop process skills which transcend the facts of science; to integrate the content and laboratory learning; to obtain data which when analyzed, leads to an improved understanding of scientific principles; and to gain an appreciation of science as a process for obtaining and organizing information. The realization of these goals will lead not only to improved science learning but also to an improved understanding of the interrelationships of science and society.

Laboratory experiences are essential for complete science courses. As with all activities where materials are manipulated, experience has shown that potential hazards exist. It is not suggested that all potentially hazardous materials be removed from school laboratories, but rather that teachers become aware of hazards associated with specific chemicals and take proper safety precautions. Safety is an integral part of science instruction. Only qualified science instructors trained in laboratory procedures and familiar with the potential hazards associated with the substances used in the school's science program should be assigned to teach science courses. Teachers must have sufficient information to use their own judgment about the degree of precaution necessary for using and storing each chemical. Chemicals in any form can be safely stored, handled, or used if the physical, chemical, and hazardous properties are fully understood and the necessary precautions, including the use of proper safeguards and personal protective equipment, are taken. This publication has been developed to assist with essential awareness and to suggest appropriate procedures to maintain a safe laboratory environment for students and teachers.

Each chemical is designated in one of seven compatability categories or has no category indicated. It is recommended that separate storage areas within science stockrooms be designated for each category. Non-categorized chemicals may be placed in a general area. Chemicals must never be stored alphabetically except within designated categories. Although protective barriers should be present to prevent containers from tumbling from shelves; large, heavy or breakable containers should be stored near the floor. The number in the lower part of the "storage containers" space on the following list of chemicals refers to the compatability category. Only chemicals with the same number should be stored together.

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IMPORTANT TERMS

Acid cabinet	A cupboard lined with sheet lead or other nonreactive, corrosion resistent surface for storage of chemicals which produce corrosive vapors.
Carcinogen	Substance which causes malignant tumors.
Flammable liquid storage cabinet	A case or cupboard made of one-inch thick fire resistant plywood and having self closing door. (Equipment Stock Item No. 772150-1) Note: Single-walled metal cabinets are not approved.
Pyrophoric	A substance readily combustible in air, such as metallic dusts.
Teratogen	A substance which causes damage to the unborn fetus.
Starred items (**)	Recommended for immediate disposal.
(*)	Often considered more hazardous than their educational value. May be retained for special uses with appropriate precautions.

SECTION ONE

POTENTIALLY HAZARDOUS CHEMICALS

COMMONLY USED IN SECONDARY SCIENCE LABORATORY INSTRUCTION

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITIONS
Acetic acid, Glacial acetic acid (vinegar)	Organic acid. Causes painful wounds when it comes in contact with skin. High vapor concentrations may produce allergic reactions.	Chromic acid, ethylene glycol, hydroxyl-containing compounds, nitric acid, perchloric acid, permanganates, and peroxides.
Acetone	Highly flammable liquid. An irritant to skin, eyes, throat, and lungs.	Bromine, chlorine, nitric acid and sulfuric acid.
Aluminum, powdered	Easily ignited, may explode. Can have hazardous reactions with metal oxides. Should not be ingested.	Acid or alkaline solutions, ammonium persulfate and water, chlorates, chlorinated compounds, nitrates, and organic compounds in nitrate or nitrite salt baths. Keep away from carbon tetrachloride, disulfide, halogens, acids, and alkalies.
Ammonia, aqueous ammonium hydroxide, or ammonia water	Inorganic base. Gas and vapor toxic. Strong eye, lung, and skin irritant.	Acids and mercury and bromine, chlorine, iodine and other halogens.

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Store in glass-stoppered or screw-capped bottle on a low shelf or in an acid storage cabinet. 4	Acetic acid dissolves sulfur and phosphorous.	EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.
Store in metal can in a flammable liquid storage cabinet. 7	Wear rubber gloves and chemical goggles. Use only with adequate ventilation.	EXTERNAL Remove victim to fresh air. Irrigate eyes with water. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.
Protect against moisture and humid air. Store in a glass-stoppered or screw-capped bottle. 1	Adequate ventilation is needed. In case of fire, cover with sand or blanket. Spraying with water is very dangerous in first stages of fire due to generation of hydrogen gas.	EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.
Polyethylene container. 6	Hazardous liquid; can cause eye damage. Should not be combined with liquid bleach. Poisonous gas is formed.	EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. In the event of spillage, neutralize with vinegar or dilute acetic acid. INTERNAL Do not use emetics. Remove to fresh air. Seek immediate medical attention.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITIONS
*Ammonium dichromate	Irritant to skin, eyes, and lungs. Strong oxidizer produces chromic oxide--a burning lung irritant which may produce skin ulcers and cause skin inflammation. Continued inhalation may cause damage to the respiratory tract. Causes tumors.	Carbides, cyanides, mercury, hydrazine, hydrates, hydroxylamine and their salts.
Ammonium nitrate	Will decompose above 160 deg. Celsius and produce explosive gaseous substances, especially when confined in a closed container. Oxidizer.	Separate from all organic materials or other contaminating substances, such as flammable liquids, acids, corrosive liquids, chlorates, chlorides, sulfur, lead, zinc, charcoal, metallic nitrates, and any finely divided metals.
Ammonium persulfate (ammonium peroxydisulfate)	Strong oxidizer.	Combustible materials and oxidizing materials such as acids, chlorates, nitrates, and aluminum powder.
**Aniline (aniline hydrochloride)	Suspected teratogen. Dangerous when inhaled, swallowed, or absorbed through skin. Flammable when heated, may give off explosive vapors. May cause headache and dizziness which may later develop into cyanosis.	Nitric acid, hydrogen peroxide. Solutions of Fe, Zn, Al and acids and alkalies.

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Keep container away from organic and oxidizable substances. Store in a screw-capped bottle. 3	Call Science Materials Center for immediate disposal. Used for volcano demonstration.	EXTERNAL Ammonium dichromate produces chromium trioxide on the skin. Wash thoroughy with water. Seek medical attention. INTERNAL Seek immediate medical attention. Avoid emetics. Maintain respiration. Causes ulceration of the nose, skin, and intestinal tract, toxic to the lungs and kidneys.
Store in a screw-capped bottle. 3	May have nitrite impurity. Contaminated material can explode. Avoid heat and fire.	If exposed to products of combustion, seek immediate medical attention.
Keep dry, store in a cool place, and protect from organic materials. Store in a screw-capped bottle. 3		EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Maintain respiration. Seek immediate medical attention.
(Dispose)	Call Science Materials Center for immediate disposal.	EXTERNAL Wash off skin promptly. Flush eyes with water for 20 minutes. Promptly wipe up spills and discard materials used to wipe up. Scrub traces of spills left on floors or tables with a strong soap solution. Bed rest may relieve headaches or dizzines caused by contact with aniline. INTERNAL Seek immediate medical attention. May cause convulsion, respiratory arrest, shock.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITONS
Antimony and antimony compounds	Highly toxic. A poison if swallowed, inhaled, or absorbed through the skin. In dust form, it is an eye irritant.	Compounds form a toxic gas with acids.
*Arsenic and arsenic compounds	Causes dermatitis, lung and lymphatic cancer when swallowed, inhaled or absorbed through skin contact.	Compounds form a toxic gas with acids.
*Asbestos	Exposure to dust can result in lung cancer after a long period of latency. Known carcinogen.	
Barium, soluble compounds	Extremely poisonous when inhaled, swallowed, or absorbed through skin.	Metal reacts with water to produce hydrogen.

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Store in a screw-capped bottle. 1		EXTERNAL Wash eyes with water. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Give emetic. Maintain respiration. Seek immediate medical attention.
Protect container against physical damage. Store in a well ventilated area away from combustible materials. Store in a screw-capped bottle. 1		EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Give emetic. Seek immediate medical attention.
(Dispose)	Call Science Materials Center for immediate disposal.	
Store in a screw-capped bottle.	Fatal dose 1 gram. Causes convulsions, bloody diarrhea, respiratory arrest.	EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Give emetic. Seek immediate medical attention.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITIONS
Barium peroxide	Powerful oxidizer.	Combustible organics, oxidizable materials, and water.
**Benzene (benzol)	Inhalation or ingestion causes acute irritation of mucous membranes, restlessness, or convulsions. Changes blood chemistry. One of the causes of leukemia. Known carcinogen. May be absorbed through skin. Flammable.	Flammable.
**Benzidine	Known carcinogen. Solid and vapor rapidly absorbed through skin. Produces bladder tumors, liver, kidney, and bone-marrow damage.	
Benzin (See petroleum ether.)		
**Benzoyl peroxide	May explode when heated. May also be exploded by shock or friction. Airway and eye irritant. May cause skin effects. Dangerous chemical.	Moisture.

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Glass-stoppered or screw-capped bottles in cool, dark, dry place. 3	Adequate ventilation and protective equipment needed. In case of reaction use powder fire extinguisher.	EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.
(Dispose)	Immediately dispose of. Call Science Materials Center.	EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.
(Dispose)	Immediately dispose of. Call Science Materials Center. Used in blood test and in making plastics, rubber, and dyes.	EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Give emetic. Seek immediate medical attention.
Do not store. (Dispose)	Immediately dispose of. Call Science Materials. Center.	INTERNAL Support respiration. Inhalation can be fatal. Seek immediate medical attention.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITIONS
Bismuth and its alloys	Flammable in powder form.	Perchloric acid.
Borates and sodium tetraborate (Borax)	Ingestion by young children can cause severe vomiting, diarrhea, shock, and/or death. Inhalation is toxic.	Acids, alkaloids and metallic salts.
Bromine	Poisonous. Liquid causes severe skin burns. Exposure to high concentrations of vapor could be deadly.	Acetone, acetylene, ammonia, benzene, butadiene, butane and petroleum gases and hydrogen, finely divided metals, sodium carbide, and turpentine.
Butyl alcohol or n-Butyl alcohol	Flammable liquid. Prolonged inhalation can be toxic.	Bromine, chromic acid, sodium peroxide.

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Store in a screw-capped bottle. 1	Causes kidney damage.	EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.
Store in a screw-capped bottle.		EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.
Dilute with water. Glass-stoppered or screw-capped bottle sealed with paraffin. 2	Collect under water. Prepare in small amounts. Store as dilute bromine water. Inhaling causes pulmonary edema (fluid in the lungs).	EXTERNAL Ventilate area. Irrigate eyes with water. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.
Metal can or approved screw-capped bottle. Store in cool, dark place away from sources of ignition. 7	Vapors are an irritant and cause coughing.	EXTERNAL Irrigate eyes with water. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITIONS
**Cadmium, soluble salts	Generates fumes which in high concentrations are extremely dangerous. All forms--dust, vapor, solid, and liquid--are harmful to eyes, lungs, and skin. Carcinogen.	Air.
Calcium, metal	Contact with alkalies, hydroxides, or carbonates may cause detonation. Burns in air. Dust and fumes are highly toxic.	Moisture (in air) or water. Halogens, alcohols, and dilute acids.
*Calcium carbide	Flammable solid. Exposure to moisture produces an explosive gas and a corrosive solid. Acetylene, calcium oxides and hydroxides.	Moisture (in air) or water.
Calcium hydroxide	A caustic inorganic base.	

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Keep containers closed. (Dispose)	Call Science Materials Center for immediate disposal. Damages lungs, liver, stomach, and intestines. Causes pulmonary edema (fluid in lungs). Ingestion causes vomiting, muscle aches, diarrhea, abdominal pain.	EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.
Store in a screw-capped bottle under kerosene or mineral oil surrounded by sand in a larger container. 1		EXTERNAL Irrigate eyes with water. If calcium contacts eyes, seek immediate medical attention. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.
Tightly sealed metal container. 7		EXTERNAL Irrigate eyes with water. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.
Store in tightly capped polyethylene container.		EXTERNAL Irrigate eyes with water. If calcium hydroxide contacts eyes, seek immediate medical attention. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITIONS
Calcium hypochlorite	A poisonous, corrosive powder, harmful to eyes, lungs, and skin. Emits chlorine gas.	Ammonia or activated carbon. Contact with organic materials can be a fire hazard.
Calcium oxide (lime)	Strongly caustic. May cause severe irritation of skin and mucous membranes.	Water.
Camphor	Poisonous on ingestion. Combustible.	
*Carbon disulfide	Highly flammable liquid. Poisonous if swallowed. Affects heart, eyes, lungs, and nervous and reproductive systems.	Acute fire and explosion hazard. Can be ignited by steam at 100 degrees Celsius or any object 65 degrees celsius or above.
**Carbon tetra-chloride	Highly toxic if inhaled, swallowed, or absorbed through the skin. Known carcinogen.	Decomposition can produce highly toxic corrosive fumes, such as phosgene and hydrogen chloride.

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Guard against damaging container. Store in a cool, well-ventilated place.		EXTERNAL Irrigate eyes with water. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Seek immediate medical attention.
Store in metal can.		EXTERNAL Irrigate eyes with water. Wash skin with soap and water. INTERNAL Seek immediate medical attention.
Glass-stoppered or screw-capped bottle. 1	Ingestion can cause convulsions.	INTERNAL Give emetic. Seek immediate medical attention.
Store in metal can. 7	Call Science Materials Center for immediate disposal.	EXTERNAL Ventilate area. Irrigate eyes with water. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.
(Dispose)	Call Science Materials Center for immediate pick up and disposal. Can cause narcosis and respiratory failure.	EXTERNAL Irrigate eyes with water. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES
**Chloroform (trichloromethane)	Irritant to skin, eyes, and lungs. Can cause liver or kidney tumors and can affect the central nervous system. Carcinogen.	
Chromates (soluble)	Both in solid form and in solution, it is an irritant to eyes, skin, and respiratory system. Carcinogen.	Isobutyl and n-Butyl alcohol. Many other organics will generate heat.
*Chromic acid, chromic trioxide, chromic anhydride	Corrosive. Strong oxidizing agent. Precautions should be taken to avoid skin contact or inhalation of the dust. This acid will ignite ethanol and similar liquids on contact. Suspected carcinogen.	Glacial acetic acid, acetic anhydride, alcohol, combustible materials, flammable liquids, glycerine, napthalene, nitric acid, sulfur and turpentine.

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Store in a dark place away from direct sunlight and moisture. (Dispose)	Inhalation can cause narcosis, paralysis, or death. Call Science Materials Center for immediate disposal.	EXTERNAL Irrigate eyes with water. Wash skin with soap and water. INTERNAL Maintain respiration. Give emetic. Seek immediate medical attention.
Store in glass-stoppered or screw-capped bottle. 1	Cover spills with sand. Pick up dry material with dust pan. Do not allow the chemical to remain in contact with metal.	EXTERNAL Irrigate eyes with water for 15 minutes. Call for immediate medical treatment by an ophthalmologist. Wash contaminated areas of body with abundant quantities of water. Seek immediate medical attention. INTERNAL If ingested, give emetic. Seek immediate medical attention. Maintain respiration.
Glass-stoppered or screw-capped bottle. 2	Produced by the action of sulfuric acid on a solution of chromate or bichromate. Avoid storage on wooden floors. Five-gram dose fatal. Ulcerates skin and mucous membranes. Call Science Materials Center for immediate disposal.	EXTERNAL Irrigate eyes with water. for 15 minutes. Call for immediate medical treatment by an ophthalmologist. Wash contaminated areas of body with abundant quantities of water. Seek immediate medical attention. INTERNAL If ingested give emetic. Seek immediate medical attention. Maintain respiration.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES
Copper salts	Slightly toxic. Soluble salts are strong irritants to mucous membranes. Copper oxide fumes can cause metal fume fever.	
Cyclohexane	Flammable. Vapor and liquid harmful to eyes, lungs, and skin.	
*P-Dichlorobenzene (paradichlorobenzene) (moth balls)	Flammable. Vapor harmful to eyes, lungs, and skin. High concentration may cause liver injury. Suspected carcinogen.	Fluorine, chlorine, bromine, chromic acid, and sodium peroxide.
Dichlorodifluoromethane (fluorocarbon 12) (Freon 12)	Mildly toxic in high concentration. Avoid liquid contact with skin because low temperature can freeze skin. Lung irritant.	

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Store in screw-capped bottle or metal can.	Damages liver, kidneys, nervous system, and capillaries.	EXTERNAL Irrigate eyes with water. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Seek immediate medical attention. Maintain respiration.
Approved glass bottle or metal can. 7	Store container in an approved wooden chemical cabinet. Used as solvent on hexane to distinguish between saturated and unsaturated compounds.	EXTERNAL Irrigate eyes with water. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Maintain respiration. Do not induce vomiting. Seek immediate medical attention.
Approved glass bottle. 7	Call Science Materials Center for immediate disposal.	EXTERNAL Ventilate area. Irrigate eyes with water. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Seek immediate medical attention.
Keep in pressurized container until ready for use.		EXTERNAL Can cause frostbite. Place limb in tepid water. Seek immediate medical attention. INTERNAL If inhaled, seek immediate medical attention.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES
Diethyl ether (ethyl ether)	Flammable, light sensitive. During storage, most ethers form peroxides which are highly explosive and very sensitive to shock. Vapor is heavier than air.	Nitric acid or fuming sulfuric acid.
**Ethylene dichloride, 1, 2 Dichloroethane	Flammable. Vapors are irritating to the respiratory tract. Carcinogen, mutagen, and teratogen.	
*Formaldehyde	Vapor irritating to eyes and lungs. Flammable. Toxic compound. Suspected carcinogen and teratogen. Dangerous when inhaled, swallowed, or absorbed through skin.	Ammonium nitrate, chromic acid, hydrogen peroxide, sodium peroxide, nitric acid, and the halogens.
Formic acid (formates)	Toxic compounds. Concentrated form is unstable and subject to explosion. Painful wounds on contact with skin.	Sulfuric acid.

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Metal can. Storage should be in a standard cabinet for flammable liquids isolated from other combustible materials. 7	Do not order more than one year's supply. Never store in a refrigerator. When received, date container and dispose of unopened container after 18 months. When opened, date container and dispose after 6 months.	EXTERNAL Ventilate area. Irrigate eyes with water. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Seek immediate medical attention.
Special storage. (Dispose)	Call Science Materials Center for immediate disposal. See Handbook of Reactive Chemical Hazards by Bretherick.	EXTERNAL Ventilate area. INTERNAL Can cause narcosis. Maintain respiration. Seek immediate medical attention.
Plastic container or screw-capped glass bottle.	Call Science Materials Center for immediate disposal. Containers of display specimens in formaldehyde which are never opened may be kept without harm. Use with adequate ventilation. Use alternative low-vapor and low toxicity preservative for specimens to be handled by students.	EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. INTERNAL Seek immediate medical attention.
Glass-stoppered or screw-capped bottle. Protect from freezing.	Keep away from heat and sunlight.	EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Maintain respiration. Seek immediate medical attention.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITIONS
Hexane	Flammable. May be irritating to respiratory tract and narcotic in high concentrations.	Oxidizers.
**Hydrazine	Flammable. Extremely dangerous when inhaled, swallowed, or absorbed through skin. Carcinogen.	Spontaneous ignition may occur on contact with finely divided porous material or wood and metal surfaces. Keep away from mercury and copper oxides.
Hydrochloric acid (muriatic acid)	Dangerous when inhaled, swallowed, or absorbed through skin. Corrosive solution and fumes. Warning: Causes burns.	Causes corrosive action on many common materials, such as metal door hinges. Do not store near ammonia.
*Hydrofluoric acid	Causes skin tissue and bones to have a severe, immediate reaction. Burns may not be painful or visible for several hours.	Ammonia (anhydrous or aqueous).

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Approved glass-stoppered bottle or metal can. Keep in well-ventilated, cool, dark place away from sources of ignition. 7	Approved cabinet for storage.	EXTERNAL Ventilate area. Irrigate eyes with water for 15 minutes. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.
Glass bottle. (Dispose)	Call Science Materials Center for immediate disposal. Isolate from oxidizing materials, such as metal oxides, peroxides, and acids. Protect against open flame or heat source. Store in a cool spot out of direct sunlight. Spills can be absorbed with clean sand (containing no organic material).	EXTERNAL Irrigate eyes with water. Wash skin with soap and water. Ventilate area. Seek immediate medical attention. INTERNAL Maintain respiration. Seek immediate medical attention.
Glass-stoppered or screw-capped bottle. 4		EXTERNAL In case of contact with skin or eyes, immediately flush with large amounts of water for at least 15 minutes. For eyes get medical attention immediately. INTERNAL If ingested, seek immediate medical attention.
Wax or plastic bottle in a container of kaolin or other absorbent. 4	Call Science Materials Center for disposal.	EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Seek immediate medical attention.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITIONS
Hydrogen peroxide 3%	Do not let it get into the eyes.	Most metals or their salts, especially chromium, copper, and iron.
Hydrogen peroxide 30% or 90%	A strong oxidant. Do not let it come in contact with combustible materials. High concentrations can cause burns to eyes and lungs.	Same as 3% hydrogen peroxide. Also aniline, any flammable liquids, combustible materials, nitromethane and all organic matter.
Iodine	Toxic if swallowed; vapor harmful to eyes and respiratory system. Solid stains the eyes and skin.	Acetylene, ammonia (anhydrous or aqueous), and hydrogen.
Iron oxide	Fumes generated at high temperatures.	
Isobutyl alcohol	Flammable. Mildly irritating to skin and mucous membranes. Possible carcinogen.	Bromine, chromic acid, and sodium peroxide.
Isopropyl alcohol	Flammable. Toxic if inhaled or ingested.	Bromine, chromic acid, sodium peroxide.

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Glass-stoppered or screw-capped bottle.	Store in well ventilated, cool, and fire-resistant place away from sources of ignition.	EXTERNAL Rinse with water soon after contact.
Glass-stoppered or screw-capped bottle with vented cap. Keep in cool place. 2	Same as 3%.	EXTERNAL Flush with water. Use burn ointment. INTERNAL Seek immediate medical attention.
Store in a cool, dry place out of direct sunlight using screw-capped bottle. 2	Tincture will evaporate because it is an alcohol solution.	EXTERNAL Remove iodine stains by washing first with a sodium thiosulfate solution and then with water. INTERNAL Seek immediate medical attention.
Store in a glass-stoppered or screw-capped bottle or metal can.		Remove to fresh air.
Metal can or approved screw-capped bottle. 7	Lethal dose twenty grams.	EXTERNAL Wash eyes with water. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.
Metal can or approved screw-capped bottle. 7	Eye irritant.	EXTERNAL Irrigate eyes with water. INTERNAL Seek medical attention.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITIONS
Kerosene	Flammable. Irritating to skin. Can cause infection. High concentration of vapors is toxic.	
Lead and lead compounds	Toxic; poison is cumulative. Dust very harmful to kidneys, blood, and nervous system. Suspected teratogen.	Air. Finely divided metal can catch fire spontaneously.
Lithium	Causes severe burns on contact with skin. Ignites spontaneously in moist air; highly flammable. Reacts violently with water to cause fire and explosions. Compounds are toxic if swallowed. Avoid inhaling of dust and getting on skin.	Acids, moisture in air, water, silver oxide, silver chloride, mercury oxide, alkalies and chloroform and other chlorinated hydrocarbons.
Magnesium, metal	Dangerous in powder form because it is highly flammable. Burns from burning magnesium are often severe and may be slow to heal.	Carbonates, chlorates, heavy metal oxalate, oxides, nitrates, perchlorates peroxides, phosphates, and sulfates.
Manganese compounds	Oxidizer; finely divided metal is a fire hazard.	Air.
Mercury, metal	Both vapor and liquid are poisonous. Contact with skin should be avoided because absorption and continuous exposure to vapor can be harmful. Suspected teratogen.	Acetylene, alkali metals, ammonia, nitric acid with ethanol, and oxalic acid.

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Metal can, glass-stoppered or screw-capped bottle. 7		EXTERNAL Irrigate eyes with water. INTERNAL Do not give emetics. Seek immediate medical attention.
Keep containers in a cool, dry place. Store in a glass-stoppered or screw-capped bottle.	Fatal dose .5 gram.	EXTERNAL Wash skin with water. Seek immediate medical attention.
Store in a screw-capped bottle under kerosene or mineral oil surrounded by sand in a larger container. 1	Amount kept on hand should be minimal.	EXTERNAL Flush with water. Seek immediate medical attention.
Glass-stoppered or screw-capped bottle. 1	Store in a place where glass-stoppered bottle cannot be damaged.	EXTERNAL In case of burns seek immediate medical attention.
Glass-stoppered or screw-capped bottle. 1		EXTERNAL Wash skin with soap and water.
Plastic container with tight-fitting lid. Make sure that bottles are stored so that they cannot tip over or fall. Keep only small quantities and in a locked cabinet. 1	If mercury spills, pick up with aspirator or rubber bulb pipette, sprinkle sulfur over area, leave undisturbed for 4 to 5 days, and then vacuum or scrub with a solution of calcium polysulfide.	EXTERNAL No specific treatment for mercury poisoning except the administering of chelating agents to speed the elimination of mercury from the body. Wash skin with soap and water.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITIONS
Mercury compounds	All are considered poisonous and harmful if swallowed, inhaled, or absorbed through the skin. Vapor, dust, solutions, and solids are all to be handled with caution. Suspected teratogen.	
Methanol (methyl alcohol)	Flammable. May cause poisoning if inhaled or absorbed through the skin, all of which can be lethal. Can cause blindness and metabolic acidosis.	Bromine, chromic acid, sodium peroxide.
**Methylene chloride	Affects central nervous system. Narcotic in high concentration. Carcinogen.	
Naphthalene	Combustible vapors. Poisonous.	Store in a cool place away from sources of heat and ignition. Separate from oxidizing materials.
*Nickel, soluble compounds	Dust can be harmful to eyes, skin, lungs and nose. Solids and solutions can be harmful if swallowed. Some compounds are carcinogens.	Contact with air may cause fire spontaneously.

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Store in glass-stoppered or screw-capped bottle.	See "Comments Regarding" for mercury, metal. Can cause severe neurological symptoms. Induces psychosis.	EXTERNAL See "First Aid" for mercury, metal. INTERNAL Seek immediate medical attention.
Metal can or approved screw-capped glass bottle. 7	Fatal internal dose 50 to 250 ml. Skin contact or ingestion causes acidosis, vision changes, respiratory depression, or death.	EXTERNAL Ventilate area. Irrigate eyes with water. Wash skin with soap and water. INTERNAL Seek immediate medical attention.
Metal can (Dispose)	Call Science Materials Center for immediate disposal. Blood monitoring required. Causes narcosis, eye damage.	EXTERNAL Ventilate area. Irrigate eyes with water. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.
Glass-stoppered or screw-capped bottle. Keep tightly closed. 7		EXTERNAL Irrigate eyes with water. Wash skin with soap and water. Ventilate area. Seek immediate medical attention. INTERNAL Maintain respiration. Seek immediate medical attention.
Glass-stoppered or screw-capped bottle.	Call Science Materials Center for immediate disposal.	EXTERNAL Irrigate eyes with water. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Seek immediate medical attention.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITIONS
Nicotine	Toxic even through skin. If swallowed, can be fatal. Teratogen.	
Nitric acid	Severe skin burns. Tissue damage if swallowed. Dental erosion, nasal and lung irritant.	Acetic acid, chromic acid, flammable liquids.
Oxalic acid	Dangerous when inhaled, swallowed, or absorbed through skin contact.	Silver, mercury.
Oxygen	Supports combustion.	Combustible substances and reducing agents.
Paraffin wax fumes	Flammable. May impair breathing.	Oxidizers, open flame.
Pentane	Flammable.	Oxidizers, open flame. Reacts explosively with reducing agents and organic compounds.

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Glass-stoppered or screw-capped bottle.	Use rubber gloves; label containers; dispose of safely. Lethal dose several ml. Can cause nausea, vomiting, diarrhea, convulsions, death.	EXTERNAL Irrigate eyes with water. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Maintain respiration. Seek immediate medical attention.
Glass-stoppered or screw-capped bottle. 5	Use rubber gloves; date containers, rotate stock; neutralize with sodium bicarbonate and clean-up with water.	EXTERNAL Flush with water for 15 minutes. INTERNAL Maintain respiration. Seek immediate medical attention.
Store in screw-capped bottle or metal can. 2	Use rubber gloves, face shield, and apron. Neutralize with sodium bicarbonate and clean up with water.	EXTERNAL Irrigate eyes with water. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Maintain respiration. Seek immediate medical attention.
Pressurized cylinders	Avoid damage to valves or pressurized cylinders.	
Store in original container. 1	To avoid danger from fumes produced from candles, candle making, wax casting, use electric hot plate and adequate ventilation.	INTERNAL For inhalation of fumes remove to fresh air. Maintain respiration. Seek medical attention.
Glass bottle or metal can. Approved cabinet. 7	Use as solvent.	EXTERNAL Ventilate area. Irrigate eyes with water. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITIONS
*Perchloric acid	Powerful oxidizer, unstable. Corrosive to tissue. Contact can cause irritation, severe pain, and burns.	Combustible substances and reducing agents.
Petroleum ether (benzine, naptha)	Flammable. Reacts with oxygen to form explosive peroxides. Central nervous system depressant.	Keep away from direct sunlight. Keep tightly closed in a cool place and away from fire.
*Phenol (carbolic acid)	Suspected teratogen. Severe burn and tissue damage, toxic. Possible carcinogen.	
*Phosphorous, yellow or white	Flammable. Spontaneously ignites on contact with air. Causes severe skin burns. Poisonous if swallowed or if smoke is inhaled.	Oxidizers, air.

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Disposal recommended. Store in glass-stoppered or screw-capped bottle. 2	Call Science Materials Center for disposal.	EXTERNAL Irrigate eyes with water. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Maintain respiration. Seek immediate medical attention.
Metal can, original container, or in the dark in full, airtight amber bottle. 7		EXTERNAL Ventilate area. Irrigate eyes with water. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.
Glass bottle. 2	Call Science Materials Center for immediate disposal. Use rubber gloves, face shield. Rapidly absorbed through skin. Damages kidney, spleen, pancreas, and causes pulmonary edema (fluid in the lungs).	EXTERNAL Neutralize with sodium bicarbonate and wash with water. Irrigate eyes with water. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.
Glass bottle under water in container of sand for stability. 2	Store, handle, and cut into tiny pieces under water in a pan or flat, open container. Lethal dose is a few mg.	EXTERNAL Flush with water for 15 minutes. Treat spattered phosphorous on tables and benches with 2% solution of copper sulfate. Seek immediate medical attention. INTERNAL Force immediate vomiting. Seek immediate medical attention.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITIONS
**Picric acid	Explosive, especially when dry. Powerful oxidizer, unstable. Flammable.	Oxidizers, drying, heat, friction.
*Potassium, metal	Causes severe burns on contact with skin. Ignites spontaneously in moist air. Explosive and flammable.	Moisture (in air) and water. Carbon tetrachloride and carbon dioxide.
Potassium chlorate or perchlorate	Explodes easily from shock or heat. Poisonous dust is irritant to lungs and harmful to skin and eyes. Reacts explosively with hydrocarbons such as kerosene. Detonates if ground with mortar and pestle. Use a large rubber stopper to grind.	Acids, especially sulfuric, or their vapors and combustible materials, especially phosphorous, sulfur and organic solvents.
Potassium dichromate	Dust is irritant to eyes, skin, and lungs. Can cause severe burns. Harmful if swallowed.	Do not store on wooden floor. Keep away from mercury, cyanides, hydrazines and their hydrates, hydroxylamines and their salts, slaked lime, and from easily oxidizable substances in general.
Potassium hydroxide	Caustic.	

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Dispose of. (Dispose)	LEAVE ON SHELF. DO NOT TOUCH CAP OR CONTAINER. Call Science Materials Center for pick up. Solutions of picric acid will be supplied on request.	EXTERNAL Irrigate eyes with water. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Maintain respiration. Seek immediate medical attention.
Store under kerosene or mineral oil surrounded by sand in a larger container. 1	Prevent bottle breakage or spill by placing bottle in sand for stability. Cover spill with mineral oil.	EXTERNAL For skin and eye contact, use 1-2.5% stearic acid in mineral oil to coat metal and follow by water flush. Seek immediate medical attention.
Glass-stoppered or screw-capped bottle or metal can. 2		EXTERNAL Irrigate eyes with water. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Maintain respiration. Seek immediate medical attention.
Glass-stoppered or screw-capped bottle or metal can.	Lethal dose is several grams.	EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Maintain respiration. Seek immediate medical attention.
Glass-stoppered or screw-capped bottle. Store solutions in polyethylene bottles. 6	Store in a dry place to avoid absorption of water.	EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Maintain respiration. Seek immediate medical attention.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITIONS
Potassium permanganate	Severe skin irritant. Explosion may occur if brought in contact with organic or other readily oxidizable substances.	Benzaldehyde, ethylene glycol, glycerin, sulfuric acid, alcohol, bromide, iodide, hydrochloric acid, and organic compounds.
Propane	Flammable. Narcotic in high concentrations. Vapor is heavier than air.	Bromine, chlorine, chromic acid, fluorine, hydrogen peroxide, and sodium peroxide.
Resorcinol	Irritating to skin and mucous membranes.	
Silver	Prolonged absorption of compounds can cause skin discoloration. Avoid inhalation of dust. Many silver salts are irritating to skin and mucous membranes.	Acetylene, ammonium compounds, nitric acid with ethanol, oxalic acid, and tartaric acid.
Silver, soluble compounds	Silver nitrate causes burns and is poisonous. Skin irritant. Keep away from eyes.	

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Glass-stoppered or screw-capped bottle or metal can. 1	Stains on skin must be left to wear off.	EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Maintain respiration. Seek immediate medical attention.
Pressurized cylinders. 7		EXTERNAL Ventilate area.
Store away from light. Glass-stoppered or screw-capped bottle.	Lethal dose is several grams. Poisonous to blood, nerves, eyes, and skin.	EXTERNAL Irrigate eyes with water. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Maintain respiration. Seek immediate medical attention.
Glass-stoppered or screw-capped bottle.		EXTERNAL Wash skin with soap and water.
Silver nitrate in brown glass-stoppered or screw-capped bottle.		EXTERNAL For silver nitrate, wash skin with water. Immediate treatment with sodium thiosulfate will prevent black stains from forming. INTERNAL Give emetics such as salt water. Seek immediate medical attention.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITIONS
Sodium, metal	Flammable, corrosive solid. Reacts violently with water, causing fires and explosions.	Moisture (in air) or water. Carbon tetrachloride, carbon dioxide.
**Sodium azide	Very unstable and explosive. Hazardous with acids.	Reacts violently with many elements and compounds.
Sodium chlorate and sodium perchlorate	Keep away from organic matter or other oxidizable substances. May explode if heated with organic matter. May cause eye, skin, and nose irritation.	Acids, ammonium salts, sulfur, and oxidizable materials.
Sodium hydroxide	Caustic, hazardous liquid. Eye and skin irritant. Inorganic bases can form explosive peroxides. Mixture with acids produces heat.	Mixture with silver nitrate produces explosive compounds.
Sodium hypochlorite	Caustic, poisonous. Irritating to the skin. Readily gives up chlorine, which is poisonous, and if inhaled may produce severe bronchial irritation.	Aqueous ammonia. Reacts hazardously with soaps. Anhydrous sodium hypochlorite is very explosive.
Sodium peroxide	Absorbs water from the air. Ignition and explosion may take place on contact with organic matter, metallic or non-metallic dust. Irritant and corrosive.	Acetic acid (glacial), acetic anhydride, alcohols, benzaldehyde, carbon disulfide, ethyl acetate, ethylene glycol, glycerine, methyl acetate, and oxidizable substances.

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Store under kerosene or mineral oil surrounded by sand in a larger container. 1	Prevent bottle breakage or spill by placing bottle in a sand bath.	Flush skin with water. Contact with eyes or ingestion requires immediate medical attention.
(Dispose)	Call Science Materials Center for immediate disposal. Lethal dose from ingestion is 1-2 grams.	EXTERNAL Irrigate eyes with water. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Maintain respiration. Seek immediate medical attention.
Glass-stoppered or screw-capped bottle or metal can. 2		EXTERNAL Flush with water.
Do not use glass stopper for solution. NaOH seals glass-stoppered bottles. Store solutions in polyethylene containers. 6		EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. Neutralize with vinegar. INTERNAL If ingested DO NOT give emetics. Seek immediate medical attention.
Acids should never be put into the same stock bottle because poisonous chlorine gas will be given off. Store in screw-capped bottle. 2	Decomposes after long storage. Store in cool, dark place away from combustible materials. Keep container tightly closed and away from moisture.	EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Maintain respiration. Seek immediate medical attention. DO NOT give emetics.
Metal can or box. Keep containers closed and protect against moisture. 1	Avoid heating, friction and percussion. Separate from sources of ignition. Irritant to eyes, skin, and nose.	EXTERNAL Irrigate eyes with water for 15 minutes. Wash skin with soap and water. Seek immediate medical attention. INTERNAL Maintain respiration. Seek immediate medical attention.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITIONS
Sodium silicate	Caustic and irritating to skin and mucous membranes.	
Sodium thiosulfate	Saturated solution breaks containers when crystalizing. May cause container to explode.	Iodine, lead, mercury, and acids.
Styrene (monomer)	Flammable. In high concentrations, may be irritating to eyes, mucous membranes, and skin.	Violent polymerization when heated. Sulfuric acid, chlorosulfonic, and oxidizers.
Sulfur	Combustible substances. May be irritating to skin and mucous membranes.	Any oxidizing materials.
Sulfuric acid	Dangerously corrosive chemical. Irritant to eyes, skin, and respiratory tract. Absorbs water with violent reaction and heat.	Sodium chlorates, perchlorates, and permanganates and light metals.

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Metal can or screw-capped bottle.	Ingestion causes intestinal upset.	EXTERNAL Wash with water for 15 minutes. INTERNAL Give water and induce vomiting. Seek medical attention.
Glass-stoppered or screw-capped bottle.	Acts as cathartic when ingested.	EXTERNAL Wash with water for 15 minutes. INTERNAL Give water and induce vomiting. Seek medical attention.
Metal can. 7		EXTERNAL Flush eyes with water for 15 minutes. Wash skin with soap and water. INHALATION Remove to fresh air. Seek medical attention. Maintain respiration. INTERNAL Maintain respiration. Seek immediate medical attention. DO NOT give emetics.
Metal can.		EXTERNAL Flush eyes with water. Wash skin with soap and water. Remove persons who show allergic reaction.
Glass-stoppered or screw-capped bottle. 4	Protect containers against physical damage and prevent contact with water.	EXTERNAL Irrigate eyes with water. Wash skin with soap and water. INTERNAL Seek immediate medical attention. DO NOT give emetics. Maintain respiration. Seek immediate medical attention.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITIONS
Toluene (toluol)	Poisonous and flammable liquid. Central nervous system depressant. Vapors and liquid irritating to eyes. Suspected teratogen.	
1,1,2-Trichloro-trifluoroethane	High concentration can lead to asphyxiation.	Active metals such as sodium, potassium and barium.
Turpentine	Flammable liquid. Irritating to skin, mucous membranes. Can cause severe kidney infection.	Bromine, chromic acid, sodium peroxide, and oxidizing materials.
Xylene (xylol)	Flammable liquid. Suspected teratogen. May be narcotic in high concentration.	Separate from oxidizing agents and sources of ignition.
Zinc metal, powdered	Dust is combustible. Irritating to skin and mucous membranes.	Acids or water. Barium oxide, ammonium nitrate, carbon disulfide, chromium oxide, manganese chloride, potassium chlorate, sodium chlorate, potassium nitrate, sulfur.

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Metal can or screw-capped bottle. 7	Storage should be in an approved Flammable Liquids cabinet.	EXTERNAL An exposed person should be removed immediately to fresh air and kept warm and quiet. Seek medical attention.
Sealed screw-capped containers. Keep in a cold (Below 25° F) well-ventilated place.		EXTERNAL Ventilate area. Irrigate eyes with water.
Metal can or approved screw-capped bottle. 7	Keep away from heat, sparks, or open flame. Use only with adequate ventilation.	EXTERNAL Ventilate area. INTERNAL DO NOT give emetics. Seek immediate medical attention.
Metal can, glass stoppered or screw-capped bottle and in flammable liquid storage cabinet. 7		EXTERNAL Ventilate area. INTERNAL Maintain respiration. Seek immediate medical attention.
Glass-stoppered or screw-capped bottle or plastic container. 1		EXTERNAL Irrigate eyes with water. Wash skin with soap and water. INTERNAL Seek medical attention.

SECTION TWO

POTENTIALLY HAZARDOUS CHEMICALS
PRODUCED IN LABORATORY EXPERIMENTS

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITIONS
Acetylene	Toxic when inhaled. Causes asphyxiation in high concentrations. Flammable.	Chlorine, bromine, copper, fluorine, silver, mercury, or the salts of the above metals.
Ammonium chloride	Nuisance dust.	Alkalies, metals and their carbonates, and lead and silver salts.
**Ammoniacal silver nitrate	Explosive.	
Amyl acetate	Flammable.	
n-Butyl acetate	Flammable.	
Chlorine	Dangerous to inhale. Can cause fatal lung and respiratory tract damage.	Acetone, ammonia, acetylene, butadiene, butane, methane, propane (or other petroleum gases), hydrogen, sodium carbide, turpentine, benzene, finely divided metals.
Esters	Flammable mixture. Alcohol-acid mixture should not be heated over an open flame.	
Ethyl acetate	Flammable.	
Hydrogen	Flammable or explosive when mixed with air and exposed to a spark.	

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
Avoid silver or copper containers.	Produced from reaction of calcium carbide and water.	Ventilate area.
	Produced from reaction of hydrogen chloride and ammonia.	EXTERNAL Flush with water.
(Dispose)	Produced in qualitative analysis of silver. Do not store in schools. Call Science Materials Center for disposal.	EXTERNAL Flush with water.
	Produced in ester experiment.	EXTERNAL Flush with water.
	Produced in ester experiment.	EXTERNAL Flush with water.
		INTERNAL Significant inhalation may cause breathing difficulty. Seek immediate medical attention.
		EXTERNAL Flush with water.
	Produced in ester experiment.	EXTERNAL Flush with water.
		Ventilate area.

NAME (COMMON OR OTHER NAME)	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITIONS
Hydrogen chloride	Dangerous to inhale. Damaging to respiratory tract. Concentrated solution may cause severe burns.	
Hydrogen sulfide	Flammable. Extremely poisonous. May cause headache, dizziness, and nausea after exposure to even low concentrations.	Fuming nitric acid, oxidizing gases.
Magnesium oxide dust	Absorbs water and carbon dioxide from the air to form magnesium hydroxide.	
Methyl acetate	Flammable. Irritating to respiratory tract in high concentrations.	
Nitrogen dioxide	Strong oxidizer. Causes lung inflammation which may lead to death.	Supports combustion of carbon, phosphorous, and sulfur (see nitric acid).
Nitrogen triiodide	Highly explosive on contact with any moving solid objects. Self-reactive.	

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
		EXTERNAL Ventilate area. Irrigate eyes with water. Wash skin with soap and water. INTERNAL Maintain respiration. Seek immediate medical attention.
	Produced from reaction of metallic sulfides and acid.	EXTERNAL Ventilate area. INTERNAL Artificial respiration (CPR) if breathing stops. Seek immediate medical attention.
	Forms when magnesium is burned.	EXTERNAL Irrigate eyes with water. Wash skin with soap and water.
	Produced in ester experiment.	EXTERNAL Flush with water. INTERNAL Seek medical attention for respiratory irritation.
	Forms from reaction with nitric acid and metals.	Ventilate area. INTERNAL Maintain respiration. Seek immediate medical attention
	Should never be prepared.	

NAME (COMMON OR OTHER NAME	HAZARDS	INCOMPATIBLE SUBSTANCES OR CONDITONS
Nitrous oxide	Strong anaesthetic properties.	
Ozone	Powerful oxidizing agent. Irritating and injurious to respiratory tract and eyes.	
Phosphorus pentoxide	Strong irritant. Corrosive to skin, mucous membranes, and eyes. Intensively absorbs water from the skin.	Moisture.
Sulfur dioxide	Intensely irritating to respiratory tract and eyes.	

STORAGE CONTAINERS	OTHER SAFEGUARDS	FIRST AID
	Should never be prepared.	Ventilate area if accidentally prepared.
	Formed in high voltage environment, such as electronic stencil cutter.	INTERNAL Seek medical attention for respiratory irritation.
	Formed by burning phosphorus in air.	EXTERNAL If burned, seek immediate medical attention.
	Formed by burning sulfur in air.	Ventilate area. EXTERNAL Flush with water.